

Zoological collectings by the Hungarian Natural History Museum in Africa: a report on the Elgon Expedition, 1992

by

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Abstract: A general report on the zoological collectings of the Hungarian Elgon Expedition to Kenya is presented. Most of the zoological work was carried out in the montane forest and the ericaceous belt of Mt. Elgon. Minor collectings were made in the Kakamega Forest, on Mt. Kenya and at a few other localities. The collecting sites are briefly described. An annotated list of the localities and dates is given. With 3 figures.

Key words: Kenya, Mt. Elgon, Mt. Kenya, Kakamega Forest, zoological trip, collectings of invertebrates

Introduction

Between 4th January and 6th February, 1992, a study trip was carried out in the southern part of Kenya (Fig. 1). The trip was devoted to a field practical for students of the Eötvös Loránd University, Budapest in order to get some experience of tropical regions. Simultaneously, a scientific programme was planned; the principal goal was to survey the bryophyte and lichen communities of the upper forest and afro-alpine belt of the Mt. Elgon (see Pócs & Szabó 1993) and to sample the invertebrate (first of all insect) fauna of the same area. More limited collecting was made on Mt. Kenya, in Kakamega Forest and at a few other localities.

The participants of the trip were Mr. Ferenc Fodor (general leader), Dr. Tamás Pócs (botanical leader), the author (zoological leader), Mr. József Sáfrány (cameraman at the Hungarian Television), eight students, a driver and a helper sent by the travel agency. Drs Min Chua and Elisabeth Kungu from the Botanical Department of the University of Nairobi also joined us. Dr. András Galács, geologist at the Eötvös Loránd University, Budapest, also took part in the trip during the first and last days. Zoological collecting was made by Mr. András Lobmayer (Lepidoptera), Mr. Gergely Várkonyi (Hymenoptera) and the author (other groups with an emphasis on Coleoptera) but all of these three helped one another in collecting and botanists also contributed a few specimens.

We reached and departed Nairobi by aeroplane via Zürich. Our vehicles, a Mercedes truck (with driver) and a Suzuki four wheel drive car were hired from local travel companies. The collecting facilities (two portable generators, light trap, blended light bulbs, killing and conservation agents, personal collecting kit etc.) and the main camping equipment were brought from Hungary; supplies necessary for everyday life were bought in markets of Nairobi, Eldoret and Kitale.

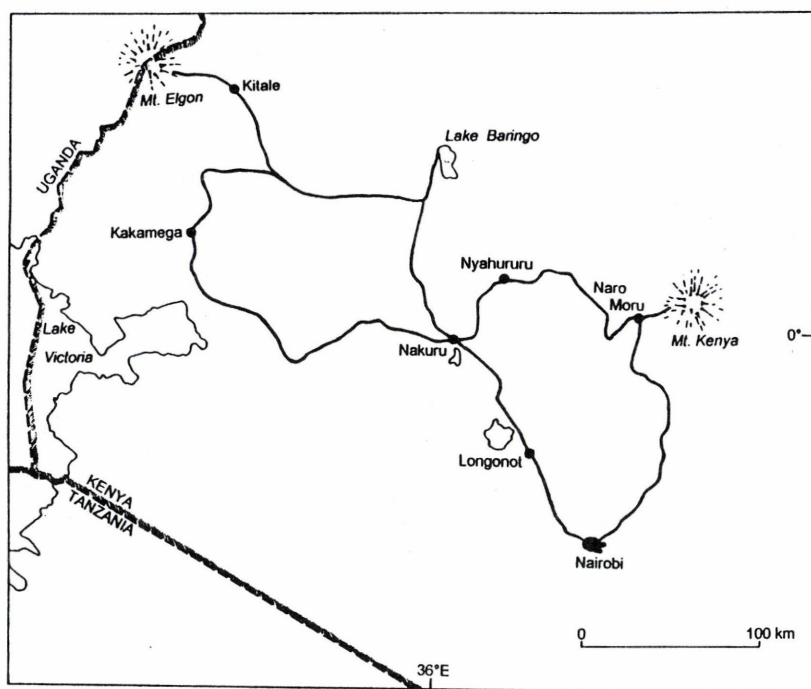


Fig. 1. The route of the Elgon Expedition

Acknowledgements

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Description of localities and activity of the expedition

Mt. Elgon

Mt. Elgon is a large extinct volcano of Miocene origin situated astride the border between Kenya and Uganda, the larger area lying in the latter country (Fig. 2). The lower parts rise gently from the surrounding plateau (about 2000 m in the

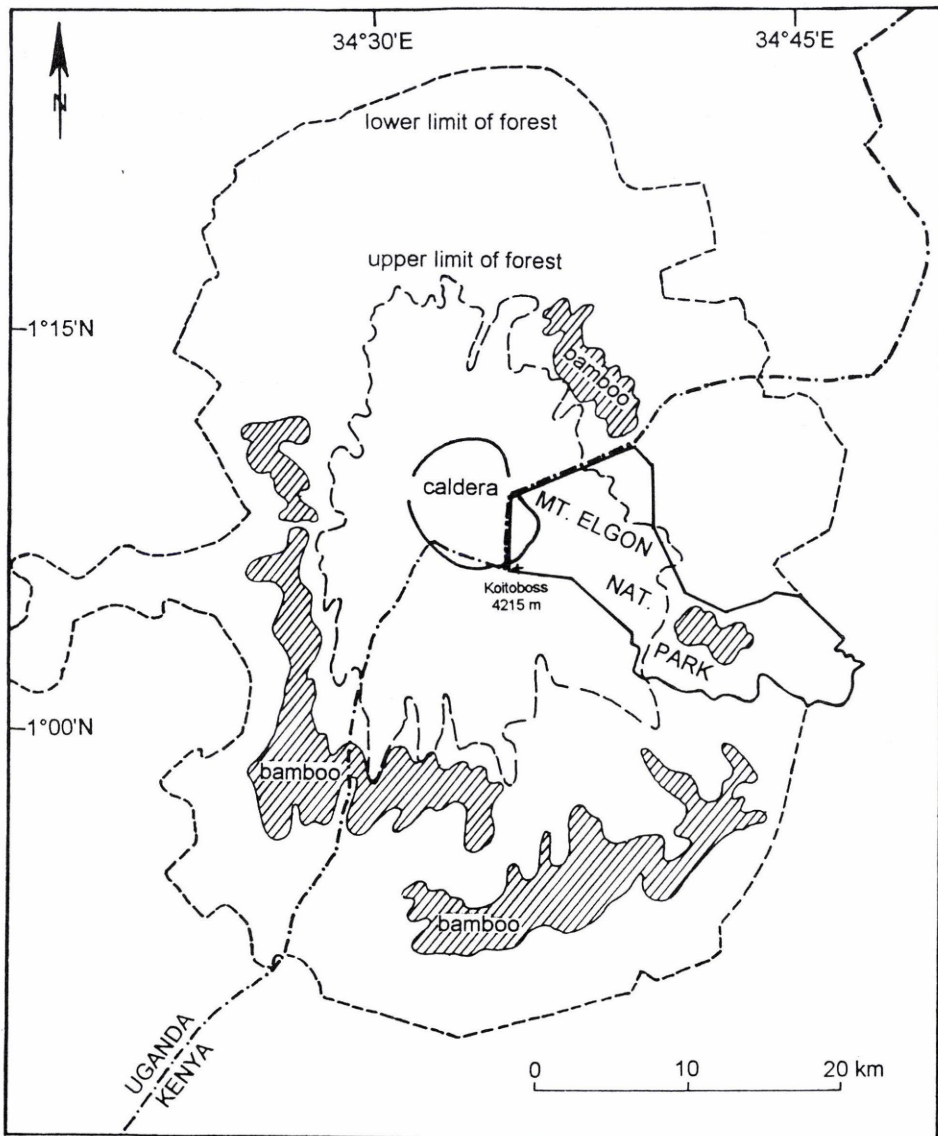


Fig. 2. Map of Mt. Elgon showing the limits of forest (after Hamilton & Perrott 1981)

Kenya side) but the higher parts are much steeper. Its caldera is 8 kilometers in diameter and surrounded by a rim consisting of a number of peaks. The highest summit is in Uganda (Wagagai, 4320 m). Of the Kenya part, the highest point is Koitoboss, 4215 m, which is the second highest peak in Kenya (data are from Hamilton & Perrott 1981 and Hedberg 1951).

Mt. Elgon is one of the seven East African mountains, which are high enough to harbour afro-alpine vegetation in their upper reaches. The vegetation belts are well-developed (Fig. 3). Up to about 2100 m, there is *Acacia-Combretum* woodland, extensive area of which is occupied by smallholdings and large farms. Above this region, the following belts can be observed:

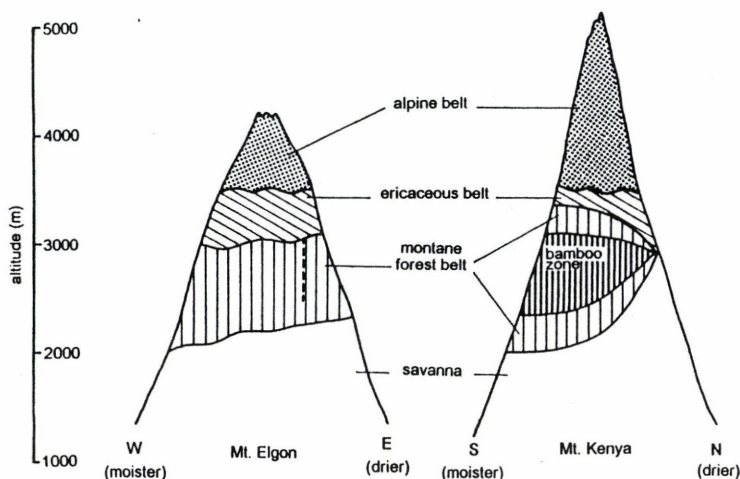


Fig. 3. Altitudinal zonation of vegetation on Mt. Elgon and Mt. Kenya. Dotted line in montane forest belt of Mt. Elgon indicates distribution of bamboo patches (after Hedberg 1951, modified)

1. Montane forest belt. On the Mt. Elgon, it is divided into three further zones.

1.A. Dry, evergreen montane forest (2400-2650 m). The term "mountain rain-forest" can hardly be applied on the Mt. Elgon since the gymnosperms (*Podocarpus*, *Juniperus*) and arborescent *Euphorbia* species indicate a dry type of forest.

1.B. Bamboo zone (2600-3000 m). The bamboo (*Arundinaria alpina*) does not constitute continuous belt on the Kenya side but considerable patches were seen.

1.C. *Hagenia-Rapanea-Hypericum* forest (3000-3200 m). This forest, called moist montane forest, is rich in epiphytic mosses and lichens. The most characteristic tree species are *Hagenia abyssinica*, *Dombeya goetzenii*, *Prunus africana*, *Rapanea rhododendroides*, *Afrocrania volkensii* and, in lesser number, *Hypericum keniense*. Because of earlier human disturbance (burning and pastoralism), these forests are now withdrawn in favour of ericaceous vegetation and grassland and are usually restricted to the narrow valleys.

2. Ericaceous belt (3200-3500 m). Microphyllous trees and shrubs (*Erica arborea*, *Philippia excelsa*, *Stoebe kilimandscharica*) form patches of thicket ("elfin forest"). Hamilton & Perrott (1981) regard this formation a successional phase of montane forests as the burned spots and the forest patches are fringed by *Philippia* and *Stoebe* indicating the re-afforestation.

3. Afro-alpine belt (3500 m). Without defined limit, the ericaceous belt is replaced by a grassland interspersed with the characteristic giant or tree ground-sels (*Senecio elgonensis* in the lower reaches and *S. barbatipes* up to the summits) and giant species of *Lobelia*. Apart from grasses, the undergrowth comprises shrubby and weedy *Helichrysum* species, *Alchemilla elgonensis* and, on wet flats, bogs of *Carex runssoroensis*. The occurrence of the spectacular giant groundsels is subject to quantity of ground water; on the rather dry Mt. Elgon they are randomly scattered in the grassland or form loose groves.

The Mt. Elgon National Park of 170 square kilometres has been established on the eastern slope. It forms an altitudinal band displaying a variety of vegetation types from the savanna to Koitoboss Peak. Although nomadic pastoralists have been removed from the park and human activity is banned, skeletons of carbonified trees are commonplace in the upper grassland and poaching occurs regularly. Tourists rarely ascend above the lava caves of the lowest part of the park.

In 1989, the Hungarian Scientific Africa Expedition stayed for a couple of days in a hut erected at 3000 m outside the national park (Vojnits, pers. comm.). However, according to the authorities, the hut got ruined completely since that time. Therefore, and because of tribal affairs the authorities advised to settle in the park. We approached it at the Chorlim Gate (2140 m a. s. l.).

Entering the park we were granted entire liberty in the choice of a site for camping. The site chosen was in the narrow ravine of the Kimothon River, 3200 m a. s. l., about 18 kilometres from the Chorlim Gate and 8 kilometres below the rim of the caldera. Our base camp was established in a remnant patch of heavily mossed cloud forest, which provided some protection against extremities of the wheather and where the river (here a 2-meter wide creek) provided uncontaminated water supply. Our truck was sent back to Nairobi. A sufficient stock of food was left in the camp and the Suzuki for the sake of security.

As usual for the afro-alpine climate, the diurnal amplitude of the temperature was quite important (near 0 C before sunrise and about 20 C in the warmest hours) and the daytime temperature changed rapidly subject to cloudiness and wind. In the moss forest patch, the temperature was much more balanced as a 24-hour microclimate measure made by the botanist staff clearly proved it. During our trip, which took place in the dry season, the precipitation was negligible; apart from two very short rains we could not find even a drop of dew.

Two light sources were applied for night collecting. The automatic light trap equipped with a UV tube was placed in the moss forest immediately in the vicinity of the camp, while the device consisting of a white sheet illuminated by blended light lamp was operated above the camp on a slope facing the ericaceous thicket. As for the results of the night collecting, there was a great deal of difference between the cloudy, slightly warmer and the harsh, cloudless nights. This was especially expressed by the number of hawk moths (*Nephela*) attracted; their number of specimens varied between zero and 50 in consecutive nights. The amount of moths was satisfactory while the beetles were represented by only a few specimens of a dung beetle (*Aphodius*) and a sole longicorn beetle, and similarly, wasp material was also poor. The light trap was operated every night from dusk to dawn, the illuminated sheet was used only in the less cold nights.

Daytime collecting included first of all sweeping in the river valley and in the ericaceous belt, up to the neighbouring cliffs, Koroborte and Chemwote. The beetles swept were numerous but rather monotonous, because of the high altitude and dry season; the overwhelming majority belonged to a few species of Melyri-

dae, Coccinellidae, Nitidulidae and Alleculinae, while the number of herbivorous Curculionidae and Chrysomelidae was surprisingly low. Heteropterans and hymenopterans were secured in moderate number, too. Thrips were taken from flowers of various plants. Singling from beneath rotten logs and stones resulted in series of trechine, agonine and scaritine carabids, diplopods, snails, Diplura, Lepismati-dea, earwigs etc. Forest litter and moss were sifted and extracted in Winkler-Moczarsky funnel; similar samples were taken to be extracted in Berlese funnel. A few earthworms were extracted from soil by formaldehyde. In the cold, running water of the creek we have seen brachyuran crabs. Small, viviparous chameleons (*Chamaeleo hoehnelii*) were regularly spotted in the shrubs. Of the birds observed, the commonest were *Corvus albicollis*, *Columba arquatrix*, *Cisticola hunteri*, *Turdus olivaceus* and *Zosterops* sp. Traces of leopard, buffalo and spotted hyena were seen everywhere. The lamellicorn *Trox montanus* and a Heteroptera species were collected in plenty from the faeces of leopard. Compared to the lowland areas of Africa, the diversity of the dung beetles of the buffalo pats was found quite low in this altitude (a few *Onthophagus*, *Aphodius*, *Sphaeridium*, staphylinine and oxyteline rove beetles were secured). Plankton sample was taken from a temporal puddle.

From the camp, on the westward continuation of the valley of the Kimothon River, some of us visited the rim and the inner part of the caldera and climbed the Koitoboss. However, little zoological work was done there. On the ascent to the caldera, small species of *Calosoma* were captured from the ground. Large, black weevils *Neoteripelus granulipennis* (= *Seneciobius loveni*, see Aurivillius 1926 and Scott 1935) associated with *Senecio* were also collected. Yellow *Colias* butterflies, which are frequent in the ericaceous belt, can be seen also in and around the caldera.

One-day trips were also directed to the bamboo thicket. March of ten kilometres was necessary to reach the first larger bamboo patch. On the way down we experienced the increasing diversity of the insects; the *Gonocephalum* tenebrionids appeared soon below the camp together with large philanthine wasps and a number of carabids. The bamboo stand itself was practically devoid of undergrowth to be swept but in the clearings we sampled an insect fauna mixed up from afro-alpine species (e.g. the coccinellid *Lioadalia sexareata* and melyrids) and the elements of the lower forests (e.g. lycid beetles, large papilionids). The number of dung beetles found in buffalo pats also increased on the descent to the bamboo.

After two weeks, when the dried-out afro-alpine belt and the moss forest seemed to promise no more important new material, the zoologist company moved to the lower zones to carry on collecting in the evergreen montane forest. A new camp was set up in the vicinity of the Chepnyalil Cave, at about 2500 m a. s. l. Botanists remained in the upper camp to perform microclimatic studies and to complete sampling mosses and lichens. Field-work was made around the camp-site in a circle of a radius of 3-4 kilometres extending to the Kitum Cave.

The forest occupying the nearby slopes and valleys appeared in its structural heterogeneity described by Hamilton & Perrott (1981). Besides the enormous *Podocarpus gracilior* and *P. milanjanus*, the most common trees were *Juniperus procera*, *Olea africana* and *O. hochstetteri*. The undergrowth, though depauperated in the dry season, was dense, especially in shady places and along brooklets; these spots provided the most diverse arthropod fauna. The clearings and tracks were fringed with pricking shrubbery of *Acanthus eminens* and the non-indigenous *Solanum inflatum*. Signs of degradation by elephants could be observed everywhere,

the vegetation being broken and smashed and the bark of most trees torn into pieces. Antelopes (*Kobus ellipsiprymnus*, *Tragelaphus scriptus*, *Cephalopus* sp.) and guereza monkeys (*Colobus guereza*) were commonly seen while giant forest hogs (*Hylochoerus meinertzhageni*) were spotted only once. The most spectacular birds included hornbills (*Bycanistes subcylindricus*), turaco (*Turaco hartlaubi*), flycatchers (*Terpsiphone viridis*) etc.

Due to the milder climate the night collecting was much more efficient than in the upper camp as far as the Coleoptera and Hymenoptera are concerned. Both the light trap and the blended light lamp were operated every night, the results being slightly different in quality: for example, large saturniids were attracted exclusively by the light trap. The number and diversity of beetles and wasps flying to light considerably exceeded that of the 3200-meter camp but, interestingly, no hawk moth was captured here. Daytime collecting included sweeping and hand-searching a huge variety of insects living on herbage; singling ground-dweller arthropods from beneath logs and stones; and taking dung beetles from buffalo pats. Two species of bats (*Miniopterus schreibersi* and *Rhinolophus* sp.) were secured in the Chepnyalil Cave.

In the swept material the richest-in-species groups included Apionidae, Hispinae, Nitidulidae, Scymninae, Lagriini of the beetles, Braconidae and Ichneumonidae of the hymenopterans, but true bugs, cicads, stalk-eyed flies (Diopsidae) were also numerous. Various papilionid and nymphalid butterflies were captured both from flowers and dung. Of the insect-attracting plants, the richest assemblage (including rose chafers *Pachnoda* and *Leucochelis*, pyrrhocorid bugs *Dysdercus* and various lycids) was seen on the pink inflorescence of *Vernonia auriculifera*. In the coprophagous fauna, the number of a few *Onitis* species was the highest.

Mt. Kenya

Situated astride the Equator, Mt. Kenya is the highest mountain of Kenya and the second highest in Africa, the highest point, Batian, reaching 5195 m. Higher, steeper, younger, wetter and more intensely studied than Mt. Elgon.

The zonation and the structure of the vegetation belts of Mt. Kenya are similar to those on Mt. Elgon but the bamboo zone constitutes a nearly continuous ring (Fig. 3). These belts and zones are not discussed here in detail as relatively little time was spent here. Detailed studies of the vegetation belts have been published e.g. by Hedberg (1951). We stayed in the Mt. Kenya National Park, at the Meteorological Station, the well-known base of tourists at 3040 m a. s. l. A simple timber house provided shelter; a troop of blue monkeys (*Cercopithecus mitis*) caused some nuisance. Most of the participants climbed Lenana Point (4985 m) along Telcki Valley and only the author did zoological work in the moss forest and in the clearings of the bamboo zone. Owing to the more humid climate, the composition of the material swept from the undergrowth clearly differed from that of the Mt. Elgon at the same altitude. For instance, Curculionidae and Chrysomelidae, rarely found on the Mt. Elgon, and a sexually dimorphic cantharid beetle comprised the major part of the collection here and Cerambycidae, which we failed to sweep on the upper Mt. Elgon, were also represented. The ground-dwelling fauna (snails, diplopods, carabids, earwigs) was similar in composition but different in species. Earthworms were much more numerous than in the soil of Mt. Elgon. In the frosty night, only a modest number of moths was attracted by light and not a single beetle was captured.

Kakamega Forest National Reserve

This is the last remnant of the rainforests in Kenya (and more or less in whole East Africa) and is the easternmost stand of the lowland rainforests of West and Central Africa, though it is better to use the term "submontane rainforest" as it is situated at 1650 m a. s. l. In the preliminary list of the woody plants given by Lucas (1968), there is a number of species that do not occur elsewhere in East Africa and the same applies for the fauna, too. While this is a lush and luxuriant rainforest, Dr. T. Pócs (pers. comm.) says that on the basis of the composition of mosses and soft-stemmed plants, it is decidedly drier than similar rainforests in the Congo Basin he studied earlier. The forest is surrounded by a densely populated area so burning and illegal logging are serious threats.

Although only one day and one night were spent with zoological work, the material captured was nearly as rich as the material gathered in the upper regions of the Mt. Elgon. In ecotonal situation of the forest and a large pasture, the sweeping was especially successful. Almost all leaves of grass were black of hispine leaf beetles (probably *Dactylispa spinulosa*), and purplish specimens of the lagriine *Chrysolagria* could also be captured in quantity.

Lirhanda Hill, a few kilometres apart from the forest, was also visited. Although stunted fern trees remained in pits from the former rainforest, the hill is now covered by grassland and scattered *Protea* and *Combretum* shrubs as a consequence of regular fires. Locusts, ants, a few beetles and the danaid mimic butterfly *Papilio rex* were captured on this hot and dry hill.

Lake Nakuru National Park

This national park comprises the alkaline Lake Nakuru, the nearby escarpment named Baboon Cliffs and an extensive savanna (mainly *Acacia xanthophloea* woodland). Night collecting was made in the woodland with white sheet illuminated by blended light bulb; general sweeping and singling were made also in the woodland; and a few tiger beetles were captured from the salty, dried out mud of the bed of the lake. A number of water-haunting birds were seen, among African residents, as winter visitors, the European breeders *Ciconia ciconia*, *Recurvirostra avosetta* and *Himantopus himantopus*.

Lake Baringo

This is a freshwater lake without official protected status. Very few insects were captured around the camp-site of the Lake Baringo Club; plankton sample was taken from the lake; and shells of Pomatiidae snails were collected from the lakeshore. A number of waders and other water birds were seen.

Other collecting sites

A few arthropods were collected at Longonot, Kimalel, Naro Moru, Mdaraywa, around a look-out point of the Elgeyo Escarpment on the road from Lake Baringo to Cabarnet, and by accidental catch in the city parks and gardens of Nairobi. Night collecting was made at Lokitela Farm a night before trespassing Mt. Elgon National Park.

Preliminary results

The following is an approximate list of the zoological collections:

Coleoptera	about	4000	specimens
Lepidoptera	about	3000	"
Hymenoptera	about	1250	"
Heteroptera + Homoptera	about	750	"
other insects	about	300	"
other invertebrates	about	500	"
vertebrates		15	"

With an exception of a few Lepidoptera duplicates housed in amateur collections the material is deposited in the Zoological Department of the Hungarian Natural History Museum and is open for specialists.

At the time of the preparation of the present paper, Dr. Gy. Sziráki (Budapest) is working on Psocoptera and Neuroptera; Dr. G. Jenser (Budapest) on Thysanoptera; Dr. H. Fürsch (Ruderting) on Coccinellidae; Dr. W. Wittmer (Basel) on "Malachiidae"; Dr. X. Vázquez (Barcelona) on Oedemeridae; Mr. Patrice Bordat (Verrières le Buisson) on Aphodiidae etc.

List of collecting localities

Elgon Expedition is one of the recent Hungarian zoological trips to Africa. The report on the previous trip made by dr. A. Vojnits to Kenya in 1991 (Vojnits, in press) ends with No. 434, so the present list starts with No. 435.

- No. 435. Nairobi, 1600 m, 5 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Singled in the city parks. – Orthoptera, Blattaria, Mantodea, Heteroptera, Homoptera, Coleoptera, Diptera, Hymenoptera, Lepidoptera, Diplopoda, Araneae.
- No. 436. Longonot, 2400 m, 7 January 1992, leg. O. Merkl. – Cultivated area; pastures and *Pyrethrum* fields. Singled, mainly from cow-pats. – Orthoptera, Coleoptera.
- No. 437. Lake Nakuru National Park, 1860 m, 7 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – *Acacia xanthophloea* woodland. Cloudy sky, no wind. Night collecting from white sheet illuminated by blended light and singled from dead *Acacia* trees in the night. – Orthoptera, Dermaptera, Heteroptera, Coleoptera, Lepidoptera, Hymenoptera.
- No. 438. Lake Nakuru National Park, 1860 m, 8 January 1992, leg. O. Merkl, G. Várkonyi. – *Acacia xanthophloea* woodland. Swept and beaten from the vegetation. – Heteroptera, Homoptera, Hymenoptera, Coleoptera.
- No. 439. Lake Nakuru National Park, 1860 m, 8 January 1992, leg. O. Merkl. – *Acacia xanthophloea* woodland. Singled from beneath stones and logs. – Isopoda, Dermaptera, Orthoptera, Heteroptera, Coleoptera.
- No. 440. Lake Nakuru National Park, Lake Nakuru, 1820 m, 8 January 1992, leg. O. Merkl. – Singled tiger beetles (Cicindelidae) in the dried-out muddy bed of the lake. – Coleoptera.
- No. 441. Lake Baringo, 1070 m, 9 January 1992, leg. O. Merkl. – *Acacia tortilis* woodland. Singled in the campsite in the lakeshore. – Orthoptera, Coleoptera, Trichoptera.
- No. 442. Lake Baringo, 1070 m, 9 January 1992, leg. O. Merkl. – Shells (Pomatiidae) collected in the lakeshore. – Gastropoda.
- No. 443. Lake Baringo, 1070 m, 9 January 1992, leg. O. Merkl. – Plankton sample taken from the open water.
- No. 444. Kimalale, 1470 m, 9 January 1992, leg. O. Merkl. – Dry *Acacia* thornbush. One millipede was found beneath stones. – Diplopoda.
- No. 445. Elgeyo Escarpment, 1710 m, 9 January 1992, leg. A. Lobmayer, O. Merkl. – Dry *Acacia* woodland. Singled from beneath stones, also captured butterflies. – Coleoptera, Heteroptera, Lepidoptera, Gastropoda.

- No. 446. Trans Nzoia District, Kinyoro, Lokitela Farm, 1870 m, 9 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – *Acacia abyssinica* woodland, clearing on the riverside. Cloudy sky, short shower, no wind. Night collecting from white sheet illuminated by blended light. – Ephemeroptera, Orthoptera, Phasmida, Orthoptera, Blattaria, Heteroptera, Homoptera, Coleoptera, Lepidoptera, Hymenoptera, Diptera.
- No. 447. Mt. Elgon National Park, Chorlim Gate, 2140 m, 10 January 1992, leg. O. Merkl. – Degraded and grazed area. Singled, mainly from buffalo dung. – Isopoda, Diplopoda, Coleoptera, Orthoptera, Araneae.
- No. 448. Mt. Elgon National Park, near Kitum Cave, 2400 m, 10 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Dry evergreen montane forest (*Podocarpus*, *Juniperus excelsa*, *Olea africana*). Swept and singled from the vegetation. – Dermaptera, Psocoptera, Heteroptera, Homoptera, Coleoptera, Lepidoptera, Hymenoptera.
- No. 449. Mt. Elgon National Park, Kitum Cave, 2400 m, 10 January 1992, leg. O. Merkl. – Isopods collected from beneath stones in the entrance of the cave. – Isopoda.
- No. 450. Mt. Elgon National Park, Kimothon River, 3200 m, 11 January 1992, leg. O. Merkl. – Brachyuran crabs collected from the river. – Crustacea.
- No. 451. Mt. Elgon National Park, Kimothon River, 3200 m, 11 January 1992, leg. O. Merkl. – One lizard collected in the campsite. – Reptilia.
- No. 452. Mt. Elgon National Park, Kimothon River, 3200 m, 11-22 January 1992, leg. O. Merkl. – Subalpine mossy forest. Singled from and from beneath rotten logs. – Lumbricoidea, Gastropoda, Isopoda, Chilopoda, Diplopoda, Diplura, Thysanura, Dermaptera, Heteroptera, Coleoptera.
- No. 453. Mt. Elgon National Park, Kimothon River, 3200 m, 11-22 January 1992, leg. O. Merkl, G. Várkonyi. – Subalpine mossy forest. Swept from the vegetation. – Ephemeroptera, Heteroptera, Homoptera, Coleoptera, Hymenoptera, Araneae.
- No. 454. Mt. Elgon National Park, Kimothon River, 3200 m, 11-22 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Dry, subalpine Ericaceae bush. Cold nights, open to cloudy sky, weak wind. Night collecting from white sheet illuminated by blended light. – Lepidoptera, Coleoptera, Hymenoptera, Neuroptera.
- No. 455. Mt. Elgon National Park, Kimothon River, 3200 m, 11-22 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Subalpine mossy forest. Night collecting by light trap. – Coleoptera, Lepidoptera, Hymenoptera, Neuroptera.
- No. 456. Mt. Elgon National Park, Chemwote, 3400 m, 12 January 1992, leg. O. Merkl, G. Várkonyi. – Subalpine Ericaceae bush. Singled and swept from the vegetation. – Orthoptera, Phasmida, Heteroptera, Homoptera, Coleoptera, Hymenoptera.
- No. 457. Mt. Elgon National Park, Chemwote, 3400 m, 12 January 1992, leg. O. Merkl. – Subalpine Ericaceae bush. Bark beetles (Scolytidae) collected from giant groundsel (*Senecio johnstonii*). The beetles infested the base of the main vein of the old leaves. – Coleoptera.
- No. 458. Mt. Elgon National Park, Koroborte, 3500 m, 13 January 1992, leg. O. Merkl, G. Várkonyi. – Subalpine Ericaceae bush. Singled and swept from the vegetation. – Blattaria, Psocoptera, Heteroptera, Homoptera, Coleoptera, Hymenoptera.
- No. 459. Mt. Elgon National Park, Koroborte, 3500 m, 13 January 1992, leg. O. Merkl. – Subalpine Ericaceae bush. Singled from beneath stones. – Diplopoda, Chilopoda, Isopoda, Coleoptera, Araneae.
- No. 460. Mt. Elgon National Park, Koroborte, 3500 m, 13 January 1992, leg. O. Merkl. – Subalpine Ericaceae bush. Trogid beetles collected from the excrement of leopard. – Coleoptera.
- No. 461. Mt. Elgon National Park, Koroborte, 3500 m, 13 January 1992, leg. O. Merkl. – Subalpine Ericaceae bush. Lizards captured among the grasses. – Reptilia.
- No. 462. Mt. Elgon National Park, Kimothon River, 3200 m, 14 January 1992, leg. O. Merkl. – Subalpine mossy forest. Sifted litter and rotten wood to be extracted in Winkler-Moczarsky funnel. – Lumbricoidea, Coleoptera, Diptera, Hymenoptera, Pseudoscorpiones, Acari, Araneae.
- No. 463. Mt. Elgon National Park, Kimothon River, 3200 m, 14 January 1992, leg. O. Merkl. – A brachyuran crab was dug out from a hole in the mossy forest. – Crustacea.
- No. 464. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 14 January 1992, leg. O. Merkl. – Dry, degraded Ericaceae bush. Singled from buffalo dung. – Coleoptera.
- No. 465. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 14 January 1992, leg. O. Merkl. – Dry, degraded Ericaceae bush. Singled from excrement of leopard. – Coleoptera, Heteroptera.
- No. 466. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 14 January 1992, leg. O. Merkl. – Boggy area along a small brooklet. Collected from the water. – Coleoptera, Amphibia.

- No. 467. Mt. Elgon National Park, Kimothon River, 3200 m, 11-22 January 1992, leg. G. Várkonyi. – Subalpine mossy forest. Wasps netted along the river. – Hymenoptera.
- No. 468. Mt. Elgon National Park, Kimothon River, 3200 m, 14 January 1992, leg. O. Merkl. – Subalpine mossy forest. Chameleons captured from twigs. – Reptilia.
- No. 469. Mt. Elgon National Park, the rim of the caldera under Koitoboss, 4020 m, 15 January 1992, leg. O. Merkl. – *Senecio barbatipes* stand. Singled from beneath stones, dry trunks of giant groundsel and on the paths. – Lumbricoidea, Gastropoda, Isopoda, Chilopoda, Dermaptera, Coleoptera, Diptera.
- No. 470. Mt. Elgon National Park, Kimothon River, 3200 m, 16 January 1992, leg. O. Merkl. – Plankton sample taken from slow-running pool of the river.
- No. 471. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 16 January 1992, leg. O. Merkl. – Plankton sample taken from the standing, temporary water of a ditch on the road.
- No. 472. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 16 January 1992, leg. O. Merkl. – Dry, degraded Ericaceae bush. Swept from the vegetation. – Orthoptera, Phasmida, Heteroptera, Homoptera, Coleoptera, Diptera.
- No. 473. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 16 January 1992, leg. O. Merkl. – Dry, degraded Ericaceae bush. Singled from beneath rotten logs. – Heteroptera, Homoptera, Coleoptera.
- No. 474. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 16 January 1992, leg. O. Merkl. – Dry, degraded Ericaceae bush. Thrips taken from the flowerheads of *Protea kilimandscharica* (Proteaceae). – Thysanoptera.
- No. 475. Mt. Elgon National Park, Kimothon River, 3200 m, 11-22 January 1992, leg. O. Merkl. – Subalpine mossy forest. Singled from bushbuck droppings. – Coleoptera.
- No. 476. Mt. Elgon National Park, 3000 m, 17 January 1992, leg. O. Merkl. – *Hypericum* forest mixed with bamboo and Ericaceae shrubs. Swept from the vegetation. – Phasmida, Psocoptera, Heteroptera, Coleoptera, Hymenoptera.
- No. 477. Mt. Elgon National Park, 3000 m, 17 January 1992, leg. O. Merkl. – Dried roadside vegetation in Ericaceae bush. Singled from beneath stones and logs. – Coleoptera.
- No. 478. Mt. Elgon National Park, 3000 m, 17 January 1992, leg. O. Merkl. – Singled from buffalo dung on the road in *Hypericum* forest. – Coleoptera.
- No. 479. Mt. Elgon National Park, 3000 m, 17 January 1992, leg. O. Merkl. – Singled from leopard excrement on the road in dry Ericaceae bush. – Heteroptera, Coleoptera.
- No. 480. Mt. Elgon National Park, 3000 m, 17 January 1992, leg. O. Merkl. – Ground beetles singled on the road in dry Ericaceae bush. – Coleoptera.
- No. 481. Mt. Elgon National Park, Kimothon River, 3200 m, 18 January 1992, leg. O. Merkl. – Subalpine moss forest. Earthworms extracted from the forest soil with formaldehyde. – Lumbricoidea.
- No. 482. Mt. Elgon National Park, the caldera, 3900 m, 18 January 1992, leg. A. Szabó. – *Senecio barbatipes* stand. Earthworms collected from moss (*Frullania* sp.) growing on rocks. – Lumbricoidea.
- No. 483. Mt. Elgon National Park, the caldera, 3900 m, 18 January 1992, leg. G. Várkonyi. – *Senecio barbatipes* stand. Singled material. – Coleoptera.
- No. 484. Mt. Elgon National Park, the caldera, 3900 m, 18 January 1992, leg. G. Várkonyi. – *Senecio barbatipes* stand. Swept from the vegetation. – Coleoptera, Hymenoptera, Neuroptera.
- No. 485. Mt. Elgon National Park, Kimothon River, 3200 m, 19 January 1992, leg. O. Merkl. – Riverside in subalpine mossy forest. *Bothriocline fusca* (Compositae): small, black cicads collected from the leaves, thrips, bugs and nitidulid beetles from the flowerheads. – Coleoptera, Heteroptera, Homoptera, Thysanoptera.
- No. 486. Mt. Elgon National Park, Kimothon River, 3200 m, 19 January 1992, leg. O. Merkl. – Dry Ericaceae bush. Thrips collected from the flowers of *Hypericum keniense* (Hypericaceae). – Thysanoptera.
- No. 487. Mt. Elgon National Park, Kimothon River, 3200 m, 19 January 1992, leg. O. Merkl. – Dry Ericaceae bush. Thrips collected from the flowerheads of *Helichrysum cymosum* (Compositae). – Thysanoptera.
- No. 488. Mt. Elgon National Park, Kimothon River, 3200 m, 19 January 1992, leg. O. Merkl. – Subalpine mossy forest. Thrips collected from the flowerheads of *Helichrysum nandense* (Compositae). – Thysanoptera.
- No. 489. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 19 January 1992, leg. O. Merkl. – Dry Ericaceae bush. Thrips collected from flowerheads of *Senecio moorei* (Compositae). – Thysanoptera.

- No. 490. Mt. Elgon National Park, SW ridge of Koroborte, 3300 m, 19 January 1992, leg. O. Merkl. – Dry Ericaceae bush. Thrips collected from flowers of *Crotalaria* sp. (Fabaceae). – Thysanoptera.
- No. 491. Mt. Elgon National Park, 2740 m, 20 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Bamboo (*Arundinaria alpina*) thicket, mixed with trees (*Podocarpus*, *Juniperus* etc.) and clearings. Swept and singled from the vegetation. – Blattaria, Thysanoptera, Psocoptera, Heteroptera, Homoptera, Coleoptera, Hymenoptera, Neuroptera, Lepidoptera.
- No. 492. Mt. Elgon National Park, 2740 m, 20 January 1992, leg. O. Merkl. – Bamboo (*Arundinaria alpina*) thicket. Singled from beneath logs. – Coleoptera, Isopoda.
- No. 493. Mt. Elgon National Park, E slope of Chemwote, 3300 m, 21 January 1992, leg. O. Merkl. – Dry Ericaceae bush. Swept from the vegetation. – Psocoptera, Heteroptera, Homoptera, Coleoptera, Hymenoptera.
- No. 494. Mt. Elgon National Park, E slope of Chemwote, 3300 m, 21 January 1992, leg. O. Merkl. – Dry Ericaceae bush. Singled from buffalo dung. – Coleoptera.
- No. 495. Mt. Elgon National Park, 2740 m, 20 January 1992, leg. F. Fodor. – Bamboo (*Arundinaria alpina*) thicket. Shells collected from beneath dry logs. – Gastropoda.
- No. 496. Mt. Elgon National Park, 2740 m, 22 January 1992, leg. G. Várkonyi. – Bamboo (*Arundinaria alpina*) thicket, mixed with trees (*Podocarpus*, *Juniperus* etc.) and clearings. Swept from the vegetation. – Heteroptera, Homoptera, Coleoptera, Hymenoptera.
- No. 497. Mt. Elgon National Park, Kimothon River, 3200 m, 14 January 1992, leg. O. Merkl. – Sample taken from the leaf litter in the mossy forest to be extracted in Berlese funnel.
- No. 498. Mt. Elgon National Park, Kimothon River, 3200 m, 14 January 1992, leg. O. Merkl. – Sample taken from rotten log in the mossy forest to be extracted in Berlese funnel.
- No. 499. Mt. Elgon National Park, Kimothon River, 3200 m, 11 January 1992, leg. O. Merkl. – Sample taken from moss covering tree branches in the mossy forest to be extracted in Berlese funnel.
- No. 500. Mt. Elgon National Park, Kimothon River, 3200 m, 11 January 1992, leg. O. Merkl. – Sample taken from moss covering ground in the mossy forest to be extracted in Berlese funnel.
- No. 501. Mt. Elgon National Park, Kimothon River, 3200 m, 12 January 1992, leg. O. Merkl. – Sample taken from humus under rotten logs in the mossy forest to be extracted in Berlese funnel.
- No. 502. Mt. Elgon National Park, Kimothon River, 3200 m, 21 January 1992, leg. O. Merkl. – Sample taken from rotten log in the mossy forest to be extracted in Berlese funnel.
- No. 503. Mt. Elgon National Park, Chemwote, 3400 m, 12 January 1992, leg. O. Merkl. – Sample taken from dried-out log in the Ericaceae bush to be extracted in Berlese funnel.
- No. 504. Mt. Elgon National Park, Chemwote, 3400 m, 12 January 1992, leg. O. Merkl. – Sample taken from moist rotten log in the Ericaceae bush to be extracted in Berlese funnel.
- No. 505. Mt. Elgon National Park, Koroborte, 3600 m, 13 January 1992, leg. O. Merkl. – *Senecio johnstoni* stand. Sample taken from the dead leaves of *Senecio* to be extracted in Berlese funnel.
- No. 506. Mt. Elgon National Park, the rim of the caldera under Koitoboss, 4020 m, 15 January 1992, leg. O. Merkl. – *Senecio barbatipes* stand. Sample taken from lichens and moss covering the trunk of *Senecio* to be extracted in Berlese funnel.
- No. 507. Mt. Elgon National Park, near Chepnyalil Cave, 2500 m, 24–28 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Dry evergreen montane forest (*Podocarpus*, *Juniperus excelsa*, *Olea africana*). Swept and singled from the vegetation. – Odonata, Orthoptera, Dermaptera, Thysanoptera, Heteroptera, Homoptera, Coleoptera, Lepidoptera, Hymenoptera, Diptera, Pseudoscorpiones.
- No. 508. Mt. Elgon National Park, near Chepnyalil Cave, 2500 m, 24–28 January 1992, leg. O. Merkl. – Dry evergreen montane forest. Singled from buffalo dung. – Coleoptera.
- No. 509. Mt. Elgon National Park, near Chepnyalil Cave, 2500 m, 24–28 January 1992, leg. O. Merkl. – Night collecting from white sheet illuminated with blended light. The light faces the eastern slopes covered by forest and a valley with streamside vegetation. – Orthoptera, Neuroptera, Heteroptera, Homoptera, Coleoptera, Lepidoptera, Hymenoptera.
- No. 510. Mt. Elgon National Park, near Chepnyalil Cave, 2500 m, 24–28 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Light trap situated in the dry evergreen montane forest. – Orthoptera, Heteroptera, Homoptera, Coleoptera, Lepidoptera, Hymenoptera.
- No. 511. Mt. Elgon National Park, Chepnyalil Cave, 2500 m, 26 January 1992, leg. E. Spielmann and O. Merkl. – Bats captured in the cave. – Chiroptera.
- No. 512. Mt. Elgon National Park, near Kitum Cave, 2400 m, 26 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Dry evergreen montane forest. Swept and singled from the vegetation. – Pseudoscorpiones, Dermaptera, Neuroptera, Heteroptera, Homoptera, Coleoptera, Hymenoptera, Diptera, Lepidoptera.

- No. 513. Mt. Elgon National Park, near Chepnyalil Cave, 2500 m, 24-28 January 1992, leg. O. Merkl. – Shaded, moist parts of the evergreen montane forest. Singled from beneath rotten logs. – Diplopoda, Heteroptera, Coleoptera, Hymenoptera.
- No. 514. Mt. Elgon National Park, near Chepnyalil Cave, 2500 m, 24-28 January 1992, leg. O. Merkl. – Beetles collected from the stream above the cave. – Coleoptera.
- No. 515. Mt. Elgon National Park, Chepnyalil Cave, 2500 m, 28 January 1992, leg. E. Spielmann. – Baited pitfall traps placed in bat guano in the cave. – Acari.
- No. 516. Mt. Elgon National Park, Chepnyalil Cave, 2500 m, 28 January 1992, leg. E. Spielmann. – Bugs collected from the surface of water in the cave. – Heteroptera.
- No. 517. Mt. Elgon National Park, Chorlim Gate, 2140 m, 29 January 1992, leg. G. Várkonyi. – Degraded forest edge. Swept from the vegetation. – Heteroptera, Coleoptera, Hymenoptera.
- No. 518. Kakamega, Lirhanda Hill, 1800 m, 30 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – *Protea-Combretum* woodland. Swept from the vegetation. – Coleoptera, Hymenoptera, Lepidoptera.
- No. 519. Kakamega Forest Reserve, 1650 m, 30 January 1992, leg. O. Merkl, G. Várkonyi. – Submontane rainforest. Singled and swept from the vegetation. – Isopoda, Orthoptera, Psocoptera, Heteroptera, Homoptera, Coleoptera, Hymenoptera.
- No. 520. Kakamega Forest Reserve, 1650 m, 30 January 1992, leg. O. Merkl. – Submontane rainforest. Singled from beneath rotten logs. – Coleoptera.
- No. 521. Kakamega Forest Reserve, 1650 m, 30 January 1992, leg. A. Lobmayer, O. Merkl, G. Várkonyi. – Night collecting from white sheet illuminated by MV light. – Orthoptera, Heteroptera, Homoptera, Hymenoptera.
- No. 522. Nakuru, 1852 m, 31 January 1992, leg. G. Várkonyi. – Accidental catching on the road. – Hymenoptera.
- No. 523. Nyahururu, 2360 m, 31 January 1992, leg. O. Merkl. – Singled from beneath logs in the town. – Coleoptera, Hymenoptera, Diplopoda.
- No. 524. Mdaraywa, E. of Nyahururu, 2400 m, 1 February 1992, leg. O. Merkl. – Degraded bush near *Juniperus* forest. Singled from beneath stones. – Coleoptera.
- No. 525. 10 km W of Naro Moru, 2000 m, 1 February 1992, leg. O. Merkl. – Secondary grassland. Singled from beneath dead *Aloe*. – Diplopoda, Coleoptera.
- No. 526. Mt. Kenya National Park, Meteorological Station, 3040 m, 2 February 1992, leg. O. Merkl. – Subalpine moist mossy forest (mainly *Hagenia abyssinica*). Singled from beneath rotten logs and stones. – Lumbricoidea, Chilopoda, Diplopoda, Isopoda, Araneae, Dermaptera, Heteroptera, Coleoptera.
- No. 527. Mt. Kenya National Park, Meteorological Station, 3040 m, 2 February 1992, leg. O. Merkl. – Bamboo (*Arundinaria alpina*) thicket, clearings and roadside. Swept from the vegetation. – Psocoptera, Heteroptera, Homoptera, Coleoptera, Diptera, Hymenoptera.
- No. 528. Mt. Kenya National Park, Meteorological Station, 3040 m, 2 February 1992, leg. A. Lobmayer, O. Merkl. – Bamboo (*Arundinaria alpina*) thicket. Night collecting from white sheet illuminated by MV light. – Lepidoptera, Hymenoptera.
- No. 529. 5 km E of Naro Moru, 2140 m, 3 February 1992, leg. O. Merkl. – Degraded, heavily grazed area. Singled from beneath stones and cow-pats. *Epilachna* ladybirds were collected from the non-indigenous "Sodom apple" (*Solanum incanum*). – Diplopoda, Chilopoda, Orthoptera, Heteroptera, Coleoptera.
- No. 530. Nairobi, 3 February 1992, leg. O. Merkl, G. Várkonyi. – Accidental catching in the city. – Coleoptera, Hymenoptera.

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